

In speculating upon the nature of the organized substances which the teeth of the *Toxodon* were destined to grind down, we must not only take the structure of the tooth into consideration, but also the power of perpetual renovation, which will compensate for the defective quantity of enamel in the grinders of the *Toxodon*, as compared with those of the existing Ruminants and Pachyderms, whose grinders, when once completed, receive no further addition of dental substance at their base. The *Toxodon*, in this character of its dentition, participated in the same advantages with the *Capybara* and the *Megatherium*.

Although we have been enabled to observe the structure of the grinding teeth of the upper jaw of the *Toxodon* in two examples only; one, an insulated perfect grinder corresponding to the sixth alveolus on the right side, and the other, a portion of the last grinder of the left side remaining in the socket of the head previously described, yet from the relations subsisting between socket and tooth, a very satisfactory opinion may be formed of the structure of those teeth which are wanting, as well as of their size. It thus appears, that the grinders of the upper jaw of the *Toxodon*, are small and simple at the anterior part of the jaw, and that they increase (chiefly in antero-posterior extent) in size, as well as in complexity, as they recede backwards in the jaw. In this respect, as well as in size, the teeth, in the fragments of the lower jaw just described, exactly correspond. There is, however, a slight difference in the lateral diameter of the two sets of grinders, those of the lower jaw being narrower, as is usually the case, but not in the same degree as in the Horse or Ruminant. A greater difference obtains in the degree of curvature of the two sets of molars, those of the lower jaw, especially the posterior grinders, being much less bent than the corresponding teeth of the upper jaw. It is necessary to observe, also, that the convexity of the curve of the inferior grinders is directed outwards, as in the superior grinders; while in the Guinea Pig and Wombat, which have also curved grinders, the convexity is outwards in the lower jaw, and inwards in the upper jaw.

Nevertheless, if we take into consideration the close similarity which exists between the teeth of the upper jaw of the *Toxodon*, and those of this lower jaw in more essential points, as in their persistent pulps, their characteristic structure and form, the depth of their sockets, and their relative sizes and complexity; and when we consider how the depth of this lower jaw, and its narrowness in the transverse direction, corresponds with the characteristic form of the upper jaw of the *Toxodon*, and that to these resemblances is added an apparatus of incisors adequate to oppose the great dentes scalprarii of the upper jaw, the conclusion seems irresistible

of temporary growth, is, of necessity, dependent on the duration of these essential aids to nutrition; thus, a sheep generally wears down its grinders in twelve years, and its natural term of life is consequently limited to about that period.

ble, that the lower jaw, here described, must be referred, if not to the same, at least to a nearly allied species of *Toxodon*, as that to which the large cranium belonged.

Further researches in South America, it is hoped, will lead, ere long, to the completion of our knowledge of the osteology of this very remarkable and interesting genus of extinct mammiferous animals.

#### DESCRIPTION OF PARTS OF THE SKELETON OF

#### MACRAUCHENIA PATACHONICA;

*A large extinct Mammiferous Animal, referrible to the Order Pachydermata; but with affinities to the Ruminantia, and especially to the Camelidæ.*

In the preceding pages the nature and affinities of a large extinct Mammal were attempted to be determined from the cranium and teeth exclusively: we come now to consider the remains of a quadruped consisting of bones of the trunk and extremities, without a fragment of a tooth or of the cranium to serve as a guide to its position in the zoological scale.

It may appear, even to anatomists and naturalists familiar with the kind of evidence afforded by a fossil fragment, that an opinion as to the relation of the present species to a particular family of Ruminants, formed without a knowledge of the important organs of manducation, must be vague and doubtful, but the evidence about to be adduced, will be regarded, it is hoped, as more conclusive than could have been *à priori* expected.

The portions of the skeleton of the animal—which, in relation to the affinity above alluded to, as well as from the length of its neck, I propose to call *Macrauchenia*\*—were discovered by Mr. Darwin in an irregular bed of sandy soil, overlying a horizontal accumulation of gravel on the south side of Port St. Julian: and independently of the circumstances under which they were found, their correspondence with each other in size, colour, texture and general character prove them to have belonged to one and the same individual.

These remains include two cervical vertebræ, seven lumbar vertebræ, all more or less fractured; a portion of the sacrum and ossa innominata; fragments of the left scapula; of the left radius and ulna, and left fore-foot; the left femur

\* *Macropus longus*, *αυχην* *cervix*: from the latter word Illiger derived *Auchenia*, his generic name of the Llama, Vicugna, &c.